Chemistry 129 Quiz #5

Name: _____

1. (15pts.) Consider the following molecules: **SF_4 , NO_2, XeF_4**.
   (i) Draw their Lewis structure, (ii) Determine the electron group and molecular geometries, (iii) Is the molecule polar or nonpolar?

   (a) SF_4

   Electron-Group Geometry: _____
   Molecular Geometry: _____
   Hybridization of central atom: _____
   Polar or Nonpolar?: _____

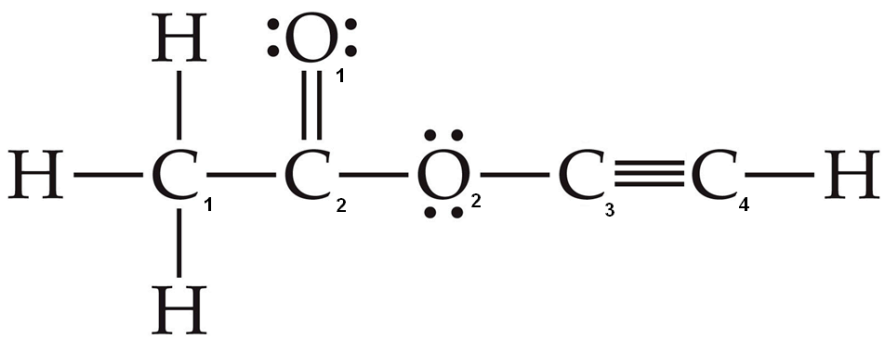
   (b) NO_2

   Electron-Group Geometry: _____
   Molecular Geometry: _____
   Hybridization of central atom: _____
   Polar or Nonpolar?: _____

   (c) XeF_4

   Electron-Group Geometry: _____
   Molecular Geometry: _____
   Hybridization of central atom: _____
   Polar or Nonpolar?: _____

2. (6 pts.)(a) What are the hybridizations of the **four carbon** atoms, the **two oxygen** atoms?



C_1: _____ **O_1**: _____

C_2: _____ **O_2**: _____

C_3: _____

C_4: _____

(b) How many sigma bonds and pi bonds does the molecule have?

_____ sigma bonds _____ pi bonds

3. (4 pts.) (a) Sketch how two p orbitals could overlap to make a sigma bond (b) Sketch how two p orbitals could overlap to make a pi bond. (c) Which one is generally stronger, a σ bond or a π bond? Explain.